UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,120	09/28/2000	Eiichi Takahashi	21.1980/CJG	8624

21171	7590	06/16/2006	EXAMINER

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ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/671,120	TAKAHASHI ET AL.
	Examiner	Art Unit
	Ayal I. Sharon	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3,4 and 8-11* is/are allowed.

6)☒ Claim(s) *1,2,6,7 and 12-15* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some * c)☐ None of:

         1.☒ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 1-15 of U.S. Application 09/671,120, originally filed on 09/28/2000, are currently pending. The application claims foreign priority to Japanese application 11-279516, filed on 09/30/1999.

2. The previous non-final office action included rejections based on a "Takahashi et al." reference. While paragraphs 4 and 5 in the previous Office Action referred to U.S. Patent 6,259,705 as the "Takahashi" reference, paragraph 12 mistakenly referred to U.S. Patent 6,385,643 as "Takahashi". (The inventors in U.S. Patent 6,385,643 are "Jacobs et al.", not Takahashi et al. The '643 reference had been used in previous Office Actions). The applicants appear to have relied on paragraph 12 in their response to the Office Action.

3. This action is therefore non-final.

Oath/Declaration

4. In the course of an updated search, the Examiner has located two previously undisclosed U.S. Patents that were co-authored by inventors of the instant application. These patents appear to be relevant to the claimed invention. The patents are:

   a. U.S. Patent 6,259,705 to Takahashi et al.

b. U.S. Patent 6,625,147 to Yokoyama et al.

5. In this office action, the Examiner has applied the Takahashi reference to reject claims 1-2, 5-7, and 12-15.

6. Applicants are reminded of their declaration, which acknowledges the duty to disclose to the Office all information known to the inventors to be material to patentability as defined in 37 CFR 1.56.

Allowable Subject Matter

7. In a previous Office Action, claims 8-11 were allowed.

8. Claims 3 and 4 are now allowed as well. In a previous Office action, claims 3 and 4 were indicated as having allowable subject matter (i.e., the formulas recited in the claim), but were objected to for being dependent upon a rejected base claim. The Applicants have rolled up the limitations in the claims.

9. Claim 5 is now objected to as being dependent upon rejected base claim 1, but would be allowable if rewritten in independent form including all of the limitations of the base claim. Examiner finds Applicants' regarding claim 5 in the most recent amendment (see p.11 of the amendment filed 3/14/06) to be persuasive.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. The prior art used for these rejections is as follows:

12. Takahashi et al. U.S. Patent 6,259,705. (Henceforth referred to as "**Takahashi**").

13. **Claims 1-2, 6, and 12-15 are rejected under 35 U.S.C. 102(e) as being**

anticipated by Takahashi.

14. In regards to Claim 1, Takahashi teaches the following limitations:

1. A service distribution device for distributing <u>specified</u> services among a plurality of servers <u>in which there is a difference in processing capacity</u> on a network to balance the server loads, comprising:

a packet capture device capturing packets transmitted through the network <u>to calculate the server processing time and parameters to configure simulation models</u>;

    (Takahashi, especially: col.4, line 59 – col.5, line 7)

a server identifier recording information pertaining to the captured packets into a server log for each server;

    (Takahashi, especially: col.5, line 55 to col.6, line 7; and "conversion table 4-a")

a service identifier recording information pertaining to the captured packets into a service log for each service;

    (Takahashi, especially: col.7, lines 11-25 and 47-64; col.8, lines 45-55)

a server modeling module setting up a simulation model for each server from the server log;

    (Takahashi, especially: col.14, lines 14-45)

a service modeling module setting up a simulation model for each service from the service log;

    (Takahashi, especially: Fig.2; and col.5, lines 9-15; and col.5, line 37 to col.6, line 48)

a simulator reading in the server model and the service model and running each simulation; and

(Takahashi, especially: see above cited sections)

a server selection module selecting and specifying an optimum server to distribute services to based on a simulator result.

(Takahashi, especially: see above cited sections)

15. In regards to Claim 2, Takahashi teaches the following limitations:

2. The service distribution device of claim 1, further comprising a packet relay device obtaining packets using a packet capture module mounted on said packet relay device, which relays packets between a client and the servers.

(Takahashi, especially: see above cited sections)

16. In regards to Claim 6, Takahashi teaches the following:

6. The service distribution device of claim 1, wherein said server selection module determines a standard value using an output of a single simulation run for each service by said simulator, and determines that a high load state exists if a difference between, or the ratio of, the standard value and the output of the simulation of a plurality of sessions exceeds a predetermined threshold.

(Takahashi, especially: see above cited sections)

17. In regards to Claim 12, Takahashi teaches the following limitations:

12. A service distribution device for distributing <u>specified</u> services among a plurality of servers <u>in which there is a difference in processing capacity</u> to balance server loads, comprising:

a server modeling module generating a simulation model for each server and a service modeling module generating a simulation model for each service based on a server log and a service log of captured server communications;

(Takahashi, especially: see above cited sections)

a simulator reading the server models and the service models and running a plurality of simulations; and

(Takahashi, especially: see above cited sections)

a server selection module determining which servers have low loads based on results of the simulations and selecting the servers with low loads to receive the services.

(Takahashi, especially: see above cited sections)

18. In regards to Claim 13, Takahashi teaches the following limitations:

13. A method for distributing <u>specified</u> services among a plurality of servers <u>in which there is a difference in processing capacity</u> to balance server
loads, comprising:

> generating a simulation model for each server and each service based on a server log
> and a service log of captured server communications;

(Takahashi, especially: see above cited sections)

> running a plurality of simulations using the server and service models; and

(Takahashi, especially: see above cited sections)

> determining which servers have low loads based on results of the simulations
> and selecting the servers with low loads to receive the services.

(Takahashi, especially: see above cited sections)

19. In regards to Claim 14, Takahashi teaches the following limitations:

14. A computer-readable storage controlling a computer <u>to distribute services among a plurality of servers in which there is a difference in processing capacity</u> and comprising a process of:

> generating a simulation model for each server and each service based on a server log
> and a service log of captured server communications;

(Takahashi, especially: see above cited sections)

> running a plurality of simulations using the server and service models; and

(Takahashi, especially: see above cited sections)

> determining which servers have low loads based on results of the simulations
> and selecting the servers with low loads to receive the services.

(Takahashi, especially: see above cited sections)

20. In regards to Claim 15, Takahashi teaches the following limitations:

15. (new) A method for distributing services among a plurality of servers <u>in which there is a difference in processing capacity</u>, comprising:

> capturing network communication of at least one of the servers;
> adding information about the captured network communication to a log;
> simulating the servers based on the log;

(Takahashi, especially: see above cited sections)

> determining at least one of the servers having a low load based on the simulation; and

distributing a service to the determined at least one of the servers.

(Takahashi, especially: see above cited sections)

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. The prior art used for these rejections is as follows:

23. Takahashi et al. U.S. Patent 6,259,705. (Henceforth referred to as "**Takahashi**").

24. Zhu, H. "Adaptive Load Sharing for Clustered Digital Library Services". The 7th Int'l Symposium on High Performance Computing. July 31, 1998. pp. 235-242. (Henceforth referred to as "**Zhu**").

25. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

26. **Claims 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Zhu.**

27. In regards to Claim 7, while Takahashi does not expressly teach the following:

7. The service distribution device of claim 6, wherein when said server selection module receives a server distribution query, said server selection module sets a server permission to be a starting frequency of the session that will cause a high load state for the service in question for each server, and specifies a server having the biggest difference between the session starting frequency and the permission as a server for distribution.

Zhu does teach these limitations (see Section 3.2, "Policies for Node

Selection and Load Collection").

It would be obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Jacobs with those of Zhu,

because doing so enables "... each processor to make a decision in a distributed

manner and choose the best server node for redirection ..." (Zhu, Section 3.2,

first paragraph).

Response to Amendment

Re: Claim Rejections - 35 USC § 102

28. In regards to claim 1, and dependent claims 2, 6, and 12-15, Applicants argue

(see p.11 of the amendment filed 3/14/06) that "Takahashi et al. teaches that a

load is distributed according to the present status of the server. Takahashi et al.

fails to teach or suggest distribution of server load based on the results of a

simulation."

29. Examiner respectfully disagrees. Takahashi teaches (see col.5, lines 3-8):

> For load measurement, the connection time is measured through
> processing of sending packets to the server. A total quantity of connection
> time is computed from the start of the measurement (the previous
> measured values are reset), and the number of connections is
> incremented.

Examiner finds that this "computation" corresponds to the claimed "distribution of

server load based on the results of a simulation", given that it corresponds to the

"server modeling" described in p.3 of the specification of the instant application.

In other words, the Takahashi reference's "computation" corresponds to the

claimed "simulation".

Re: Claim Rejections - 35 USC § 103

30. In regards to claim 5, Applicants argue (see p.11 of the amendment filed 3/14/06)

that "Kleinrock teaches only generation of a mean response time of a system.

Kleinrock fails to teach or suggest generating a mean value or a median value of

a session time." Examiner agrees and has withdrawn the rejection. The claim is

now objected to for depending from a rejected claim.

31. In regards to claim 7, Applicants argue (see p.12 of the amendment filed 3/14/06)

that "Zhu fails to teach or suggest making a selection based on a simulation or

simulated value." Examiner respectfully disagrees, given that Takahashi's

"computed" values correspond to the claimed "simulated" values. (See

Examiner's response to Applicant's arguments regarding claim 1, above).

Correspondence Information

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Ayal I. Sharon whose telephone number is

(571) 272-3714. The examiner can normally be reached on Monday through

Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

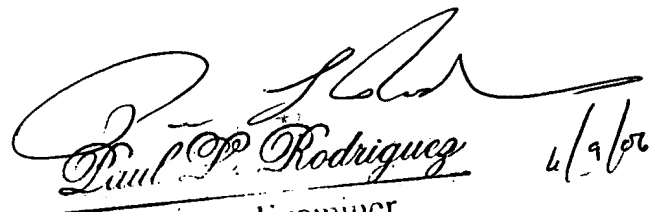Any response to this office action should be faxed to (703) 872-9306,

or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
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401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application

or proceeding should be directed to the Tech Center 2100 Receptionist, whose

telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
June 2, 2006

Primary Examiner
Art Unit 2125 2123